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We claim:

1. A triazolopyrimidine of the formula I

$$\begin{array}{c|c}
N & N \\
N & N
\end{array}$$
 $\begin{array}{c|c}
R^1 \\
R^2$

5

in which the substituents are as defined below:

 R^1 is C_1 - C_5 -alkyl or C_1 - C_{10} -alkoxy- C_1 - C_{10} -alkyl,

10 R^2 is C_5 - C_{12} -alkyl,

where R¹ and/or R² may be substituted by one to three of the following groups:

cyano, nitro, hydroxyl, C₃-C₆-cycloalkyl, C₁-C₆-alkylthio, NR^aR^b;

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 R^a , R^b are hydrogen or C_1 - C_6 -alkyl.

2. The compound of the formula I according to claim 1 in which R¹ and R² are unsubstituted and together have at most 14 carbon atoms.

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- 3. The compound of the formula I according to claim 1 in which R¹ is methyl, ethyl, n-propyl, isopropyl, n-butyl or n-pentyl, where the carbon chains are unsubstituted or may be substituted according to claim 1.
- 25 4. The compound of the formula I according to claim 1 in which R² is n-heptyl, n-octyl, n-nonyl or 1-methyloctyl.
 - 5. 6-Methyl-5-pentyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 5-Hexyl-6-methyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 5-Heptyl-6-methyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 6-Methyl-5-octyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 6-Methyl-5-nonyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 6-Ethyl-5-octyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 6-Ethyl-5-noctyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 5-Decyl-6-ethyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 5-Octyl-6-propyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 5-Nonyl-6-propyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 5-Decyl-6-propyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine.

6. A process for preparing compounds of the formula I according to any of claims 1 to 5 wherein ß-keto esters of the formula II,

$$RO$$
 R^1
 R^2
 R^2
 R^3

5 in which R is C₁-C₄-alkyl are reacted with 3-amino-1,2,4-triazole of the formula III

to give 7-hydroxytriazolopyrimidines of the formula IV

$$\begin{array}{c|c}
 & OH \\
 & N \\
 & N \\
 & N \\
 & R^2
\end{array}$$
IV

which are halogenated to give compounds of the formula V

$$\begin{array}{c|c}
 & \text{Hal} \\
 & \text{N} \\
 & \text{N} \\
 & \text{N} \\
 & \text{R}^2
\end{array}$$

10

in which Hal is chlorine or bromine, and V is reacted with ammonia.

7. A process for preparing compounds of the formula I according to any of claims 1 to 5 wherein acyl cyanides of the formula VI,

$$\begin{array}{ccc}
 & & & VI \\
 & & & & VI \\
 & & & & & VI
\end{array}$$

15

are reacted with 3-amino-1,2,4-triazole of the formula III according to claim 6.

8. A fungicidal composition comprising a solid or liquid carrier and a compound of the formula I according to any of claims 1 to 5.

- 9. Seed comprising a compound of the formula I according to any of claims 1 to 5 in an amount of 1 to 1000 g per 100 kg.
- 10. A method for controlling phytopathogenic harmful fungi wherein the fungi or the materials, plants, the soil or seed to be protected against fungal attack are treated with an effective amount of a compound of the formula I according to any of claims 1 to 5.

We claim:

1. A triazolopyrimidine of the formula I

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in which the substituents are as defined below:

 R^1 is C_1 - C_5 -alkyl or C_1 - C_{10} -alkoxy- C_1 - C_{10} -alkyl,

10 R^2 is C_5 - C_{12} -alkyl,

where R¹ and/or R² may be substituted by one to three of the following groups:

cyano, nitro, hydroxyl, C₃-C₆-cycloalkyl, C₁-C₆-alkylthio, NR^aR^b;

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 R^a , R^b are hydrogen or C_1 - C_6 -alkyl.

2. The compound of the formula I according to claim 1 in which R¹ and R² are unsubstituted and together have at most 14 carbon atoms.

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- 3. The compound of the formula I according to claim 1 in which R¹ is methyl, ethyl, n-propyl, isopropyl, n-butyl or n-pentyl, where the carbon chains are unsubstituted or may be substituted according to claim 1.
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 - 6-Methyl-5-pentyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 5-Hexyl-6-methyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 5-Heptyl-6-methyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 6-Methyl-5-octyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 6-Methyl-5-nonyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 6-Ethyl-5-octyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - $\hbox{6-Ethyl-5-noctyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;}\\$
 - 5-Decyl-6-ethyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 5-Octyl-6-propyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 5-Nonyl-6-propyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine;
 - 5-Decyl-6-propyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylamine.

6. A process for preparing compounds of the formula I according to any of claims 1 to 5 wherein ß-keto esters of the formula II,

$$RO$$
 R^1
 R^2
 O

5 in which R is C₁-C₄-alkyl are reacted with 3-amino-1,2,4-triazole of the formula III

to give 7-hydroxytriazolopyrimidines of the formula IV

$$\begin{array}{c|c}
 & OH \\
 & N \\
 & N \\
 & N \\
 & R^2
\end{array}$$

which are halogenated to give compounds of the formula V

$$\begin{array}{c|c}
 & \text{Hal} \\
 & \text{N} \\
 & \text{N} \\
 & \text{N} \\
 & \text{R}^2
\end{array}$$

10

in which Hal is chlorine or bromine, and V is reacted with ammonia.

7. A process for preparing compounds of the formula I according to any of claims 1 to 5 wherein acyl cyanides of the formula VI,

$$\begin{array}{ccc}
 & & & VI \\
 & & & & VI
\end{array}$$

15

are reacted with 3-amino-1,2,4-triazole of the formula III according to claim 6.

8. A fungicidal composition comprising a solid or liquid carrier and a compound of the formula I according to any of claims 1 to 5.

- 9. Seed comprising a compound of the formula I according to any of claims 1 to 5 in an amount of 1 to 1000 g per 100 kg.
- A method for controlling phytopathogenic harmful fungi wherein the fungi or the
 materials, plants, the soil or seed to be protected against fungal attack are
 treated with an effective amount of a compound of the formula I according to any
 of claims 1 to 5.

5,6-Dialkyl-7-aminotriazolopyrimidines, their preparation and their use for controlling harmful fungi, and compositions comprising these compounds

Abstract

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5,6-Dialkyl-7-aminotriazolopyrimidines of the formula I

$$N-N$$
 R^1
 R^2

in which the substituents are as defined below:

10 R¹ is alkyl or alkoxyalkyl,

R² is alkyl,

where R¹ and/or R² may be substituted as defined in the description;

15

processes for preparing these compounds, compositions comprising them and their use for controlling phytopathogenic harmful fungi.